REMARKS

We have carefully considered the Office Action dated May 9, 2007, in which claims 18-20, 22, 23, 31, 35, 36 and 39 are objected to as being dependent upon a rejected base claim and are otherwise allowable, claim 1 is rejected as anticipated by United States Patent 5,134,407 to Lorenz et al., claims 32 and 37 are rejected as anticipated by United States Patent Application Publication 2005/0025222 to Underbrink et al., claims 2-4, 8 and 9 are rejected as obvious over combinations that include the Lorenz patent, and claims 33, 34, 38 and 40 are rejected as obvious over combinations that include the Underbrink published application.

In response to the objections to claims 9, 19 and 31 due to a lack of proper antecedent basis, we have amended the claims. We have further amended the independent claims to explicitly state what was implicit, namely, that the code phase decoder decodes values that correspond to the estimated *code* phase angles of the samples.

A double patenting rejection has been proposed against claims 1-8, 10-17, 21 and 24-30. However, the application to which the rejection refers, namely, co-pending application No. 11/226,174 has a priority date which falls after the priority date of this application. Further, we point out that the claims of the cited application relate to measurements that correspond to a first PRN code and a second PRN code, while the claims of the current application relate to measurements of a single PRN code. Accordingly, the

claims of the two applications, which are co-owned and have common inventorship, should be patently distinct.

Claim 1 is rejected as anticipated by the Lorenz patent. The Examiner equates the code phase decoder of claim 1 with carrier phase generators 107 and 109 in Fig. 4 of the Lorenz patent. The carrier generators 107 and 109 are not the same as nor do they perform the same operation as the code phase decoder of the current invention. The carrier generators 107 and 109 of the Lorenz patent do not decode values that correspond to the estimated code phase angles of the samples, rather they generate local versions of the carriers. Specifically, the carrier phase generators 107 and 109 generate signals that are used to remove the carriers from the received L1 and L2 signals, respectively. The removal of the carriers from the received L1 and L2 signals is performed by mixers 115 and 121. The receiver described in the current application also removes the carrier from the received signal, using phase generator 22 and mixer 25, as described in the current application starting at page 7, line 3.

The Lorenz patent does not anticipate claim 1 because, *inter alia*, the Lorenz patent does not show the code phase decoder of claim 1.

Claim 32 is rejected as anticipated by the Underbrink published application. As discussed above, we have amended claim 32 to explicitly state that the ranges are based on estimated *code* phase angles of the samples. The I and Q samples discussed in the Office Action are based on carrier phase angles. The Underbrink reference does not anticipate the method of claim 32 because, *inter alia*, the Underbrink reference does not show

a step of selectively combining the measurements into ranges that span all or a portion of a code chip, the ranges being based on estimated *code* phase angles of the samples. For the same reason, the Underbrink reference does not show the method of claim 37, which depends from claim 32.

Claim 2 is rejected as obvious over a combination of Lorenz and United States Patent 5,963,582 to Stansell Jr. As discussed above, the Lorenz system lacks the code phase decoder of claim 1. The Stansell reference similarly does not include a code phase decoder. The Stansell reference is directed to producing various forms of discriminator functions. The waveform shown in Fig. 36G to which the Examiner points is a punctual version of the locally generated PRN code.

A combination of the Lorenz and Stansell patents does not teach or suggest a system that includes the phase code decoder. Thus, the combination does not teach or suggest the invention as set forth in claim 2, which depends from claim 1.

Claim 3 is rejected over a combination of Lorenz and United States Patent 6,751,247 to Zhengdi. The Zhengdi system utilizes different spreading codes, which can be thought of as PRN codes. The spreading, or PRN, codes of different users are of different lengths, with either the same chip frequency as shown in Fig. 5 and different chip frequencies as shown in Fig. 6. The differences of the lengths of the respective codes and/or the chip frequencies of the respective codes provides different results in cross-correlation operations. The Zhengdi reference does not provide to the Lorenz system a

code phase decoder. Accordingly, the combination does not teach or suggest the invention as set forth in dependent claim 3, which depends from claim 1.

In rejecting claim 4 the Examiner combines United States Patent 6,493,376 to Harms et al. with the Lorenz patent. The Harms system includes an inner PRN code and an outer PRN code. The cited portion of the Harms patent describes an accumulator that calculates the correlation values associated with the local PRN code at each possible local PRN code offset time. As set forth in column 24, lines 29 et seq., the offset time for a code is a number of chips, and thus, the Harms system is attempting to align the local code with the received code in a conventional manner, namely, by stepping through the local code. Accordingly, the Harms patent does not add to the Lorenz patent the missing code phase decoder, and thus, does not teach or suggest the invention set forth in claim 4 which depends from claim 1.

United States Patent 5,390,207 to Fenton et al. is combined with the Lorenz system to reject claims 8 and 9 as obvious. The Fenton patent, which has an inventor in common with the current application, does not teach or suggest the code phase decoder. While the Examiner is correct that the Fenton system uses I and Q signal samples and associated registers, there is no teaching or suggestion of the code phase decoder that is missing from the Lorenz system. Accordingly, the combination does not teach or suggest the subject matter of claims 8 and 9, which depend from claim 1.

Claims 33 and 34 are rejected as obvious over a combination of United States Patent 5,764,686 to Sanderford et al. with the Underbrink published application. The

portion of the Sanderford reference to which the Examiner points discusses the conventional operations of acquiring a PRN code. Thus, the cited portion describes adjusting the code chip generator to move the local code by a code chip or a portion of a code chip in an attempt to align the edges of the local code with the edges of the received code. The Sanderford system does not add to the Underbrink system the method step of selectively combining measurements into ranges that span all or a portion of a code chip, the ranges being based on estimated code phase angles of the samples. Accordingly, the combination does not teach or suggest the invention as set forth in claims 33 and 34, which depend from claim 32.

We are confused by the Examiner's statement that the correlation function is interpreted to be the direct path signal. As is known in the art, the correlation function is based on correlation measurements that are the result of multiplying the PRN code in the direct, or received, signal with the locally generated PRN code.

Claim 38 has been rejected over a combination of the Underbrink application and United States Patent 6,466,612 to Kohli et al. The Kohli reference describes, in the section pointed to by the Examiner, a mechanism to aid in the pull in, that is, the acquisition, of the satellite signal. The Kohli patent describes testing various local code offsets in parallel as a way to speed up acquisition or re-acquisition of the satellite signal. This is explained in more detail beginning in column 12, lines 24. The specific section referred to by the Examiner, that is, column 17, lines 25-28 describes using a set of twenty delays to determine which delay corresponds to the punctual, or prompt, version of the code.

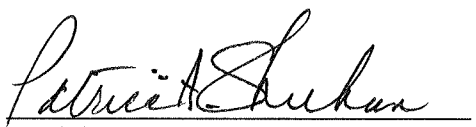
The combination of the teachings of the Underbrink and the Kohli reference thus does not add to the Underbrink the missing step of selectively combining the measurements into ranges with the ranges being based on estimated code phase angles of the samples, and thus does not teach or suggest the invention as set forth in claim 38.

With respect to claim 40, the Fenton reference, which is discussed above, does not provide to the teachings of Underbrink the missing step of selectively combining the measurements into ranges with the ranges being based on estimated code phase angles of the samples. Accordingly, the combination does not teach or suggest the invention of claim 40.

In light of the above, we respectfully request that the Examiner reconsider the rejections of the claims. The claims, as amended, should now be in form for allowance. Accordingly, we ask that the Examiner issue a Notice of Allowance for all pending claims.

Please charge any fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,



Patricia A. Sheehan
Reg. No. 32,301
CESARI AND MCKENNA, LLP
88 Black Falcon Avenue
Boston, MA 02210-2414
(617) 951-2500